Small Business Innovation Research/Small Business Tech Transfer

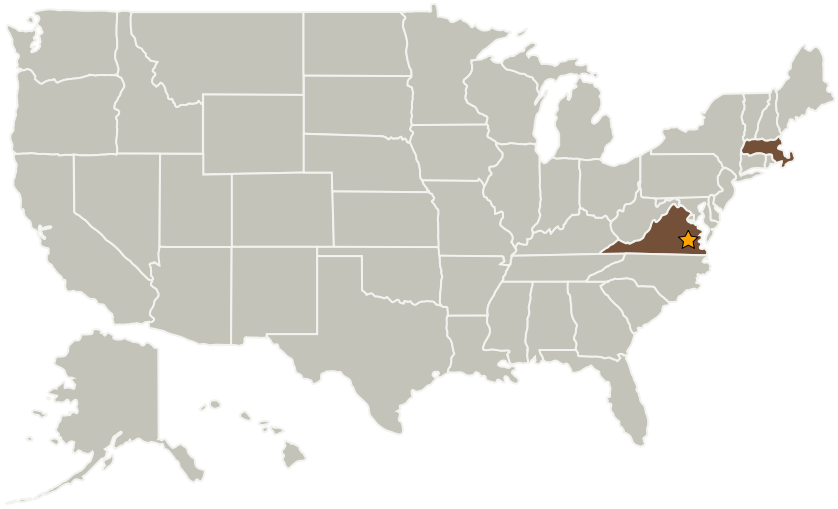
Efficient and Compact Semiconductor Laser Transmitter Modules, Phase II

Completed Technology Project (2009 - 2012)

Project Introduction

Continue development of a Compact Transmitter Module (CTM). Modules will be voltage controlled to adjust wavlength using temperature and drive current settings. The electronics will be designed to be space qualifiable. Modules will be designed and manufactured capable of operating at 1.2x µm and 1.57 µm. Reductions in size, weight and power will be pursued using either small conventional coolers or thin film thermoelectric coolers (nano-coolers) to replace the conventional larger TEC. Weight reductions will be explore by using alternative which are composites of Aluminum Silicon (AlSi) and Aluminum Graphite.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
EM4, Inc.	Supporting Organization	Industry	Bedford, Massachusetts

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

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Primary U.S. Work Locations	
Massachusetts	Virginia

Project Transitions

December 2009: Project Start

March 2012: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.1 Optical Communications
    - TX05.1.3 Lasers